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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,994	04/15/2004	Steven E. Ready	A2242-US-DIV	7265
33726	7590	11/28/2005	EXAMINER	
BEVER, HOFFMAN & HARMS, LLP 1432 CONCANNON BLVD., BLDG. G LIVERMORE, CA 94550			NGUYEN, LAM S	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 11/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/824,994

Applicant(s)

READY ET AL.

Examiner

LAM S. NGUYEN

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

1. Claims 1-2, 4-9 are rejected under 35 U.S.C. 102(a) as being anticipated by Yamada et al. (US 6328418).

Yamada et al. discloses a print head in a printing system, the printing system being configured to move the print head in a first print direction (*column 1, lines 15-17: The print head moves in a main scanning direction*) and a second print direction across a substrate (*column 1, lines 20-25: The print head relatively moves in an auxiliary scanning direction respect to the recording sheet*) without changing a rotational orientation of the print head relative to the substrate, the first print direction and the second print direction being nonparallel, the print head comprising:

an ejector base (*FIG. 9, element 310*); and

a first plurality of ejectors (*FIGs. 15 and 17, element 16a*) mounted in the ejector base, the first plurality of ejectors being arranged in a first line, the first line being diagonal to the first print direction and the second print direction (*FIG. 17: The first line is the line P that connects all the ejectors in the bottom chip 1Z and inclines respectively to the main scanning direction (the first print direction) and to the sub scanning direction (the second printing direction)*)).

Referring to claim 2: wherein the first print direction and the second print direction are orthogonal (*column 3, line 65 to column 4, line 3: The main scanning direction and the auxiliary scanning direction are orthogonal/perpendicular*).

Referring to claims 4, 8-9: wherein the plurality of ejectors are configured to print an IC pattern, a phase change material for a semiconductor process mask, or a solution-processable electronic materials to form an integrated circuit (*Since the claims define a printhead, the intended use of the printhead for printing/forming an IC pattern, a semiconductor process mask, or an integrated circuit is considered, but not given patentable weight*).

Referring to claim 4-5: wherein a first spacing between each of the first plurality of ejectors in the first print direction is an integer multiple of a first design rule of the IC pattern, and wherein a second spacing between each of the first plurality of ejectors in the second print direction is an integer multiple of a second design rule of the IC pattern, and wherein the first design rule is the same as the second design rule (*FIGs. 15 and 17*) (*Since the claims define a printhead, the intended use of the printhead for printing/forming an IC pattern is considered, but not given patentable weight. In addition, because the first and second design rules of the IC pattern are not part of the printhead, these elements are not considered as claim limitations contributing to the structure of the printhead*).

Referring to claim 6: further comprising a second plurality of ejectors mounted in the ejector base, the second plurality of ejectors being arranged in a second line, the second line being parallel to the first line, wherein each of the first plurality of ejectors and the second plurality of ejectors has a unique position in the first print direction (*FIG. 17: The second line is the line connects all nozzles in the 1Y head chip adjacent to the bottom head chip 1Z*).

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Referring to claim 7: further comprising a third plurality of ejectors mounted in the ejector base, the third plurality of ejectors being arranged in a third line, the third line being parallel to the first line, wherein each of the first plurality of ejectors and the third plurality of ejectors has a unique position in the second print direction (FIG. 17: The third line is the line *connects all nozzles in the 1X head chip adjacent to the above head chip 1Y*).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US 6328418) in view of a legal precedent (*MPEP 2144.04 LEGAL PRECEDENT AS SOURCE OF SUPPORTING RATIONALE*).

Yamada et al. discloses the claimed invention as discussed above and also teaches that wherein the first line is at a θ angle with respect to the first print direction (the main scanning direction) and at a $90^\circ - \theta$ angle respect to the second print direction (the auxiliary scanning direction), wherein the θ angle is from 0 to 90° and defined as follows:

$$\theta = \sin^{-1}(Ps/Po) \quad (\text{column 3, line 31})$$

where Ps and Po are the pitch between neighboring nozzles in the main scanning direction and the auxiliary scanning direction, respectively.

Yamada et al. is silent wherein the θ angle is at 45° respect to the first print direction and to the second print direction.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to set the θ angle is at 45° to obtain an associate resolution, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S. NGUYEN whose telephone number is (571)272-2151. The examiner can normally be reached on 7:00AM - 3:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LN
11/20/2005


HAI PHAM
PRIMARY EXAMINER